

Amendments to the Claims:

This listing of claims replaces all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A vision prosthesis for implantation at a location in an eye comprising:

- an optical element having a characteristic function associated with refraction therethrough; and
- a memory element that has stored therein wavefront data ~~selected~~ to control an index of refraction profile of the optical element, wherein the wavefront data is configured according to selectively a selected a high-order aberration correction to modify the characteristic function of the optical element to reduce high-order aberration in the eye.

2. — 7. (Canceled)

8. (Original) The vision prosthesis of claim 1 further comprising:

- a range-finder for generating, from a stimulus, an estimate of a distance to an object-of-regard;
- an actuator in communication with the optical element for providing a signal that controls the focusing power thereof; and
- a controller coupled to the rangefinder and to the actuator, for causing the actuator to generate the signal based on the estimate.

9. (Previously Presented) The vision prosthesis of claim 1 further comprising:

an actuator in communication with the optical element for providing a signal that controls the characteristic function thereof; and

a controller coupled to the actuator for causing the actuator to generate the signal based on wavefront data stored in the memory element.

10. (Original) The vision prosthesis of claim 9 wherein the signal is a parallel signal carried over a plurality of signal lines addressing a corresponding plurality of electrodes on the actuator.

11. (Original) The vision prosthesis of claim 9 wherein the characteristic function of the optical element changes in response to the signal by changing an index of refraction of material within the optical element at a plurality of locations.

12. (Canceled)

13. (Original) The vision prosthesis of claim 9 further comprising:

a range-finder coupled to the controller for generating, from a stimulus, an estimate of a distance to an object-of-regard;

wherein the signal is based on the estimate, and focusing power of the optical element changes in response to the estimate.

14. (Original) The vision prosthesis of claim 13 wherein the characteristic function of the optical element changes in response to the estimate.

15. (Original) The vision prosthesis of claim 1 wherein the location in the eye is selected from the group consisting of:

the anterior chamber;

the posterior chamber;

the lens-bag; and

the cornea.

16. (Original) The vision prosthesis of claim 1 wherein the optical element is adapted for implantation in a phakic human patient.

17. (Original) The vision prosthesis of claim 1 wherein the optical element is adapted for implantation in an aphakic human patient.

18. (Withdrawn) A method comprising:

implanting the optical element and memory element of the vision prosthesis of claim 1 into the eye;

measuring aberration in the eye when the optical element is implanted in the eye;

determining the wavefront data based on the measured aberration; and

programming the wavefront data into the memory device.

19. (Canceled)

20. (Previously Presented) The vision prosthesis of claim 1 wherein the wavefront data stored in the memory element is based on a wavefront aberration measurement performed on a patient.

21. (Previously Presented) The vision prosthesis of claim 1 wherein the high-order aberration comprises at least one of spherical aberration, coma, astigmatism, field curvature, and distortion.

22. (Previously Presented) The vision prosthesis of claim 1 wherein the index of refraction profile of the optical element is modifiable to reduce a different high-order aberration in response to different wavefront data being stored in the memory element.

23. (New) The vision prosthesis of claim 1 wherein the wavefront data depends on an estimate of a distance to an object-of-regard.

24. (New) The vision prosthesis of claim 1 wherein the memory element is configured to enable the wavefront data to be re-programmed in situ.

25. (New) The vision prosthesis of claim 24 wherein the memory element is configured to enable the wavefront data to be re-programmed by transmitting data over a wireless link.

26. (New) The vision prosthesis of claim 25 wherein the wireless link is encrypted.